

REMARKS/ARGUMENTS

This paper is being provided in response to the Office Action dated January 4, 2007 for the above-referenced application. In this response, Applicant has amended Claims 1, 22, and 41. Applicant respectfully submits that the amendments to the claims and the newly added claims are supported by the originally filed application.

The rejection of Claims 1-7, 22-28, 41-52 and 63-65 under 35 U.S.C. 112, first paragraph, is hereby traversed and reconsideration thereof is respectfully requested. Claims 1, 22, and 41 have been amended in accordance with remarks set forth in the Office Action to remove the previously recited feature *without using directory information indicating which portions of the storage device are associated with a file*. However, Applicant respectfully points out that scanning without using directory information is described in Applicant's specification, for example, at page 18, lines 10-14.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

The rejection of Claims 1-4, 22-25 and 41-44, 46-52, and 63-65 under 35 U.S.C. § 102(e) as being unpatentable over Waldin et al (U.S. Patent No. 6,094,731 hereinafter referred to as "Waldin") is hereby traversed and reconsideration thereof is respectfully requested.

Claim 1, as amended herein, recites a computer implemented method of scanning a storage device for viruses, comprising: determining physical portions of the storage device that have been modified since a previous virus scan using information about the physical portions

without using information about a file structure, a file system, or a file type; detecting, by the storage device, write operations to tracks of the storage device; providing, to an antivirus unit by the storage device, information indicating which tracks of the storage device have been accessed for a write operation; and scanning, by the antivirus unit, at least parts of the physical portions for viruses, wherein scanning is performed without using information about a file structure, a file system, or a file type, and wherein scanning is performed on those tracks to which write operations have been directed in accordance with the information provided by the storage device. Claims 2-4, and 63 depend from Claim 1.

Claim 22, as amended herein, a computer program product for scanning a storage device for viruses, the computer program product including a computer-readable medium with executable code stored thereon for: determining physical portions of the storage device that have been modified since a previous virus scan using information about the physical portions without using information about a file structure, a file system, or a file type; detecting, by the storage device, write operations to tracks of the storage device; providing, to an antivirus unit by the storage device, information indicating which tracks of the storage device have been accessed for a write operation; and scanning, by the antivirus unit, at least parts of the physical portions for viruses, wherein the scanning is performed without using information about a file structure, a file system, or a file type, and wherein scanning is performed on those tracks to which write operations have been directed in accordance with the information provided by the storage device. Claims 23-25, and 64 depend from Claim 22.

Claims 41, as amended herein, recites an antivirus unit, comprising: means for coupling to at least one storage device; means for determining physical portions of the storage device that

have been modified since a previous virus scan using information about the physical portions without using information about a file structure, a file system, or a file type; means for receiving, from the at least one storage device, information determined by the at least one storage device indicating which tracks of the at least one storage device have been accessed for a write operation; and means for scanning at least parts of the physical portions for viruses, wherein scanning is performed without using information about a file structure, a file system, or a file type, and wherein scanning is performed on those tracks to which write operations have been directed in accordance with the information provided by the storage device. Claims 42-44, 46-52, and 65 depend from Claim 41.

Waldin discloses a system, method and computer readable medium for examining a file associated with an originating computer to determine whether a virus is present within the file. (See Abstract). Waldin discloses scanning a file and placing file the identification number of each sector that is scanned into a critical sectors. As each sector is operated upon, a hash value is calculated for that sector and inserted into the critical sectors file along with the size of the file scanned. (Col. 4, Lines 52-64; Figures 1 and 2). Waldin's Figure 1 includes antivirus modules on an originating computer 2 and a recipient computer 11 and processing performed on each of the computer systems when transmitting a file from an originating computer to a recipient computer. (See Figure 1; Col. 3, Lines 22-34). Waldin's Figure 3 determines if computed hash values for file 1 match stored hash values for file 1. If not, the entire file 1 is rescanned. (Steps 36, 37 of Figure 3; Col. 6, Lines 43-46; See also Col. 2, Lines 24-26). Waldin discloses determining hash values for only those sectors of a file actually retrieved by module 5 of Figure 1. Module 3 of Waldin's Figure 1 always scans the same set of sectors of a file unless the file changes in length or the contents of those sectors changes in some way. The antivirus accelerator

module 5 automatically hashes all sectors scanned by module 3 in the same way regardless of contents of the sectors. No new parser of hasher coding needs to be performed and incorporated into module 5 to support new file formats. (Col. 7, Line 35-Col. 8, Line 2).

Claim 1, as amended herein, is neither disclosed nor suggested by Waldin in that Waldin neither discloses nor suggests at least the features of *a computer implemented method of scanning a storage device for viruses, comprising: ... detecting, by the storage device, write operations to tracks of the storage device; providing, to an antivirus unit by the storage device, information indicating which tracks of the storage device have been accessed for a write operation; and scanning, by the antivirus unit, at least parts of the physical portions for viruses, ... wherein scanning is performed on those tracks to which write operations have been directed in accordance with the information provided by the storage device*, as set forth in amended Claim 1.

As described above, Waldin's Figure 1 includes antivirus modules executing on an originating computer 2 and a recipient computer 11 and processing performed on each of the computer systems when transmitting a file from an originating computer to a recipient computer. (See Figure 1; Col. 3, Lines 22-34). Waldin discloses an example in Column 7, beginning at line 48, in which antivirus module 3 virus scans sectors 1, 3, and 10 from a file 1 of size 10K. If a change were made to either sectors 1, 3, or 10, module 3 would notice the change since it reads and scans these three sectors. Thus, Waldin discloses that changes to a sector within a file are detected by module 3, one of the antivirus modules on the originating computer 2. Waldin does not disclose or fairly suggest a storage device detecting write operations to tracks of the storage device, having the storage device provide information to an antivirus unit indicating which tracks

of the storage device have been accessed for a write operation, and then having the antivirus unit perform scanning on those tracks to which write operations have been detected in accordance with the information provided by the storage device. In distinct contrast, Waldin discloses the originating computer including the antivirus modules detecting changes to sectors which it reads and scans. The sectors which are scanned by module 3 are indicated in the critical sectors file 4. (See Col. 7, Lines 34-47) Thus, Waldin discloses the originating computer including the antivirus modules detecting changes to sectors, rather than the storage device detecting write operations to tracks. Furthermore, Waldin only detects changes for those sectors included in the critical sectors file. If a change is made to a sector which is not in the critical sectors file, the sector will not be rescanned unless the file length changes. (Col. 7, Lines 53-58). If a change is made to one of the sectors indicated in the critical sectors file, all sectors of the critical sectors file are rescanned in Waldin. Thus, Waldin does not disclose or fairly suggest scanning those tracks to which write operations have been directed. Rather, Waldin discloses scanning all sectors indicated in the critical sectors file if any one sector in the critical sectors file has been changed. Waldin further discloses that if a change is made to a sector not in the critical sectors file, the sector will not be rescanned unless the length of the file changes.

In view of the foregoing, Applicant respectfully submits that the Waldin does not teach, disclose or fairly suggest at least the foregoing recited features of Claim 1.

Applicant's amended independent Claims 22 and 41 recite features similar to those set forth above regarding Claim 1 that are neither disclosed nor suggested by Waldin. Thus, for reasons similar to those set forth regarding Claim 1, Applicant's Claims 22 and 41 are also neither disclosed nor suggested by Waldin.

Claims that depend from each of the independent Claims 1, 21, and 41 are not disclosed or suggested by Waldin for at least those reasons set forth above in connection with the independent claims. However, features set forth in the dependent claims are also neither disclosed nor suggested by Waldin.

Claim 63 recites in part, ... *determining, for each sector of said storage device for a current virus scan, whether said each sector has been modified since a previous scan; and for said current virus scan, scanning only those sectors determined to have been modified since said previous scan.* As described above, Waldin discloses performing rescanning only of those sectors included in the critical sectors file. On the recipient computer, Waldin discloses rescanning all sectors in the critical sectors file if there is a change to only a single sector thereof. Thus, Applicant respectfully submits that Waldin cannot possibly disclose or fairly suggest the features of Applicant's Claim 63 which explicitly recites *scanning only those sectors determined to have been modified since said previous scan.* Furthermore, because Waldin (on both the originating and recipient computers) only examines those sectors identified in the critical sectors file, Applicant respectfully submits that Waldin also cannot possibly disclose or fairly suggest determining for each sector of the storage device for a current scan whether each sector has been modified since a previous scan.

For at least the foregoing reasons, Applicant respectfully submits that Waldin does not disclose or fairly suggest the features set forth in dependent Claim 63. Dependent Claims 64 and 65 recite features similar to those of Claim 63 and are also neither disclosed nor suggested by Waldin for similar reasons.

On page 5 of the Office Action in connection with the rejection of Claims 2 and 42, the Office Action appears to equate tracks and sectors to refer to the same entity. Applicant respectfully submits that tracks and sectors with respect to a storage device do not refer to the same entity which is why, for example, Applicant has both dependent Claims 2 and 3. For a rejection to be proper under 35 U.S.C. 102, the cited reference must disclose each feature as claimed. Applicant respectfully submits that no where in Waldin does there appear to be any mention of a “track”. As such, Applicant respectfully submits that the rejection of Claims 2 and 42 is improper.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

The rejection of Claims 5-7, 26-68 and 45 under 35 U.S.C. § 103(a) as being unpatentable over Waldin is hereby traversed and reconsideration thereof is respectfully requested. Applicant respectfully submits that Claims 5-7, 26-28 and 45 are patentable over the cited reference.

Claims 5-7 depend from Claim 1. Claims 26-28 depend from Claim 22. Claim 45 depends from Claim 41. For reasons set forth above, Waldin does not disclose or suggest independent Claims 1, 22 and 45 and also does not disclose or suggested Claims 5-7, 26-28 and 45 that depend, respectively, therefrom.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

Based on the above, Applicant respectfully requests that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 508-898-8604.

Respectfully submitted,
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